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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/876,227	06/08/2001	Mark Neuschutz	MERCK 2276	6191

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EXAMINER	
PATEL, NIHIR B	

ART UNIT	PAPER NUMBER
3743	

DATE MAILED: 09/23/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/876,227	NEUSCHUTZ ET AL.	
	Examiner	Art Unit	
	Nihir Patel	3743	

-- The MAILING DATE of this communication app ars on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *August 28th, 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) *3 and 4* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2 and 5-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to RCE and Arguments

1. Applicant's arguments filed on August 28th, 2003 have been fully considered but they are not persuasive. Claims 2, 3 and 4 were withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a non-elected inventions, there being no allowable generic or linking claim.

The applicant argues that Laing in no way suggest a method wherein a heat generating component is contacted with a heat sink and heat absorbing component such that heat flows from the heat sink to the heat absorbing component when the heat sink temperature exceeds the phase change temperature of the phase change material. The examiner disagrees. Laing does disclose a method wherein a heat-generating component 1 (see figure 1) in contacted with a heat sink 5 and 6 (see figures 1 and 2) and heat-absorbing component 2 (see figure 1 and 2) such that heat flows from the heat sink to the heat absorbing component when the heat sink temperature exceeds the phase change temperature of the phase change material.

The applicant also argues that Laing fail to suggest phase change materials that are liquid/gaseous heat transfer media such as halogenated hydrocarbons, nor does the patent suggest a solid-solid phase change material. The examiner disagrees. Claims 3 and 4 state that the the phase change materials that are liquid/gaseous heat transfer media such as halogenated hydrocarbons and claims 3 and 4 have been withdrawn from further consideration as being drawn to a non-elected species. Liang in view of Buckley does suggest a solid to solid phase change material.

Election/Restrictions

2. Claims 3 and 4 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected species, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 8.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Laing US Patent No. 3,780,356. Referring to claim 1, Laing discloses a cooling device for semiconductor components that does comprise a heat-conducting unit 1 (see figure 1) and a heat absorbing unit 5 and 6 (see figure 1) which contains a phase change material 3 (see figure 1), wherein the phase change material is arranged in such a way that heat flows from the electrical or electronic component is preferentially to the heat conducting unit 1 (see figure 1) and a majority of heat flow to the phase change material from the electrical or electronic component occurs only when the temperature of the-conducting unit1 exceeds phase change temperature of the phase change material (see figures 1 and 2).

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

The intended use statements are not given any patentable weight in this instance for example "for cooling heat-generating electrical or electronic components having a non-uniform output profile".

Referring to claim 2, Laing discloses a phase change material-containing unit that contains at least one cavity into which the phase change material has been introduced, wherein the cavities are formed by the heat-absorbing unit 5 and 6 (see figures 1 and 2).

Referring to claim 6, Laing discloses a phase change material 3 (see figure 1) that is encapsulated (see figure 1).

Referring to claim 7, Laing discloses heat-conducting unit that has surface area-increasing structures (see figure 1; column 2 lines 45-50).

Referring to claim 8, Laing discloses a heat conducting unit that has cooling fins (see figure 1 and column 2 lines 45-50).

Referring to claim 14, Laing discloses a cooling device for semiconductor components that comprises a heat sink 2 (see figure 1) and a heat absorbing component containing phase change material 5 and 6 (see figure 1), wherein heat flows from the heat sink to the heat absorbing component when the heat sink temperature exceeds the phase change temperature of the phase change material (see figure 1).

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

The intended use statements are not given any patentable weight in this instance for example "for absorbing heat".

Referring to claim 15, Laing discloses a cooling device for semiconductor components that comprises a heat sink 2 (see figure 1) and a heat absorbing means containing a phase change material 5 and 6 (see figure 1), wherein heat flows from the sink means 2 to the heat absorbing means when the heat sink temperature exceeds the phase change temperature of the phase change material (see figure 1).

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

The intended use statements are not given any patentable weight in this instance for example "for absorbing heat".

Referring to claim 16, Laing discloses a cooling device for semiconductor components that comprises a device for absorbing heat, in contact with a heat generating electric or electronic component, a heat sink 2 and a heat absorbing component containing a phase change material (see figure 1), wherein heat flows from the heat sink to the heat absorbing component when the heat sink temperature exceeds the phase change temperature of the phase change material (see figure 1).

Referring to claim 17, Laing's discloses a cooling device for semiconductor components that comprises contacting the electric or electronic component with a heat sink and a heat absorbing component containing a phase change material (see figure 1), wherein heat flows from the heat sink to the heat absorbing component when the heat sink temperature exceeds the phase change temperature of the phase change material (see figure 1).

Referring to claim 18, Laing discloses a heat sink temperature that exceeds the phase change temperature of the phase change material at peak output of the electric or electronic component (see figure 1).

Referring to claim 19, Laing discloses an apparatus wherein the heat from the electric or electronic component flows directly to the heat sink (see figure 1).

Referring to claim 20, Laing discloses an apparatus wherein the heat absorbing component is in direct contact with the electric or electronic component 9see figure 1).

Referring to claim 21, Laing discloses an apparatus wherein the heat absorbing component is in direct contact with the electric or electronic component (see figure 1).

Claims 9, 10, 11, and 12 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Maruyama et al. US Patent No. 6,266,242.

Referring to claims 9, 10, 11, and 12, Laing discloses a cooling device for semiconductor components that comprises a heat-generating component having non-uniform output (The semiconductor in Laing's invention can be considered a part of a heat generating component like CPU, computer, or electronic data processing system that has a non-uniform output) wherein units and components are arranged in such a way that the heat flow between the heat-generating electronic component and the heat conducting unit takes place in direct contact 9see figure 1).

It would have been obvious to modify Liang's invention by providing a heat generating electronic component having a non-uniform output (for example CPU, computer, or electronic data processing system) from Maruyama's invention in increase the cooling process.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laing US Patent No. 3,780,356 in view of Fitch et al. US Patent No. 6,317,321.

Laing discloses the applicant's invention as claimed with the exception of providing a solid-to-solid phase change material.

Fitch discloses a lap-top enclosure having surface coated with heat-absorbing phase-change material that does provide a solid-to-solid phase change material. Therefore it would be obvious to modify Laing's invention by providing a solid-to-solid phase change material in order to increase the heat transfer process.

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Laing US Patent No. 3,780,356 in view of Bunyan et al. US Patent No. 6,054,198.

Laing discloses the applicant's invention as claimed with the exception of stating that the electrical component is used in a mobile communication power switch or power circuit, a mobile telephone or fixed transmitter transmission circuit, an electromechanical actuator control circuit, a satellite communication or radar application high frequency circuit, or a domestic appliance or industrial electronic actuator or control unit is.

Bunyan discloses a conformal thermal interface material for electronic components that does state that the electrical component could be used in a mobile communication power switch

or power circuit, a mobile telephone or fixed transmitter transmission circuit, an electromechanical actuator control circuit, a satellite communication or radar application high frequency circuit, or a domestic appliance or industrial electronic actuator or control unit is. Therefore it would be obvious to modify Laing's invention by stating that the electrical component could be used in a mobile communication power switch or power circuit, a mobile telephone or fixed transmitter transmission circuit, an electromechanical actuator control circuit, a satellite communication or radar application high frequency circuit, or a domestic appliance or industrial electronic actuator or control unit is so that one knows the limitations of the invention.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (703) 306-3463. The examiner can normally be reached on Monday-Friday from 7:30 am to 4:30 pm. If attempts to reach the examiner by telephone are unsuccessful the examiner supervisor Henry Bennett can be reached at (703) 308-0101.

NP
September 10, 2003

Henry Bennett
Supervisory Patent Examiner
Group 3700